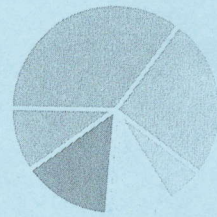


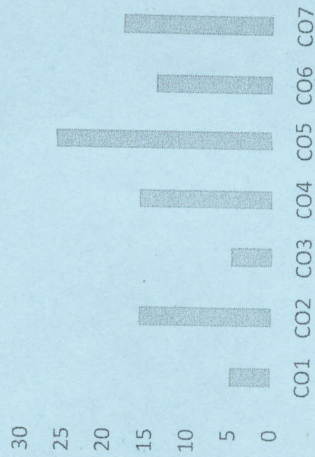
CO1	To know physiology of respiration
CO2	To know mechanism of digestion & absorption
CO3	To know mechanism of working of heart
CO4	To know mechanism of blood circulation
CO5	To know muscle physiology and muscle contraction
CO6	To know excretion and Osmoregulation
CO7	To know nervous and endocrine coordination

### GRAPHICAL REPRESENTATION

**Bloom's Level wise Marks Distribution**



**Course Outcome Wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6



**ARKAJAIN**  
University  
Jharkhand

**End Term Examination**  
School of Health & Allied Science

Branch	B.Sc.Biotechnology	Program	Bachelor of Science
Subject Name	Mammalian Physiology	Semester	I
		Year	2023/ Odd
Time: 3 Hour Max. Marks : 60	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't Write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Four out of Six of Section B</li> <li>Answer Any Three out of Five of Section C</li> <li>Possession of <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u></li> </ul>		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

### Section A (Each question Carry 01 Marks from Q1-i to Q1-x) – 10 Marks

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	The tiny air sacs present in human lungs is called a) Alveoli b) Bronchus c) Bronchioles d) Trachea	1	CO1	K1, K2, K4	PO1, PO2, PO3
ii	Which cells produce insulin? a) Alpha cells b) Beta cells c) Delta cells d) F cells	1	CO7	K1, K2, K5	PO1, PO2, PO3
iii	Normal GFR in an Adult a) 120 ml/ min b) 90 ml/ min c) 200 ml/ min d) 60 ml/ min	1	CO6	K1, K2, K3	PO1, PO2, PO3
iv	The membrane that surrounds the bone is known as a) Pericardium b) Periosteum c) Perichondrium d) Endosteum	1	CO5	K1, K2	PO1, PO2, PO3
v	The enzymes present in pancreatic juice are a) Amylase, Trypsinogen, Peptidase, Rennin b) Trypsinogen, Lipase, Amylase, Procarboxypeptidase c) Peptidase, Pepsin, Amylase, Rennin d) Maltase, Amylase, Trypsinogen, Pepsin	1	CO2	K1, K2, K3	PO1, PO2, PO3
vi	In Hypothyroidism, level of TSH is a) Low b) Normal c) High d) Absent	1	CO7	K1, K2	PO1, PO2, PO3
vii	The posterior pituitary stores and releases: a) Growth hormone and prolactin b) Prolactin and oxytocin	1	CO7	K1, K2	PO1, PO2, PO3

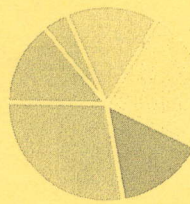
viii	c) Oxytocin and antidiuretic hormone (ADH) d) ADH and growth hormone Blood vessel carries deoxygenated blood to the lungs from the right ventricle. a) Pulmonary artery b) Pulmonary vein c) Aorta d) None of the above	1	C04	K1, K2	PO1, PO2, PO3
ix	Renin is released by a) Kidney b) Lungs c) Heart d) Stomach	1	C06	K1, K2	PO1, PO2, PO3
x	Cardiac output is the product of the a) Heart rate × Peripheral resistance b) Heart rate × Stroke volume c) Heart rate / Peripheral resistance d) Heart rate / Stroke volume	1	C03	K1, K2, K5	PO1, PO2, PO3
<b>Section B Answer any FOUR out of SIX [4X5=20 Marks]</b>					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Writes notes on composition of Pancreatic, gastric and intestinal juice.	5	C02	K1, K2, K5	PO1, PO2, 3,8,9
3	Write notes on mechanism of generation & propagation of nerve impulse. Briefly discuss about Cardiac cycle.	5	C07	K1, K2, K5	PO1, PO2, PO3
4	Briefly discuss about Cardiac cycle.	5	C04	K1, K2,3, 5	PO1, PO2, PO3
5	Write notes on neuromuscular junction.	5	C05	K1, K2,5, 6	PO1, PO2, 3,8,9
6	Discuss in details about Urea cycle.	5	C06	K1, K2,3, 5	PO1, PO2, PO3
7	Briefly discuss about Nephron and processes involved in urine formation.	5	C06	K1, K2, K5	PO1, PO2, 3,8,9
<b>Section C Answer any THREE out of FIVE [3X10=30 Marks]</b>					
Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Briefly discuss about Hypothalamus & Pituitary gland.	10	C07	K1, K2, K5	PO1, PO2, PO3
9	Briefly discuss about mechanical & chemical digestion of Fats.	10	C02	K1, K2,3, 5	PO1, PO2, 3,8,9
10	Write notes on Hemopoiesis.	10	C04	K1, K2, 4,5,6	PO1, PO2, 3,8,9
11	Define Joints. Classify it and write notes on Synovial joints.	10	C05	K1, K2,5, 6	PO1, PO2, PO3
12	Write notes on skeletal muscle contraction & Relaxation.	10	C05	K1, K2, K5	PO1, PO2, 3,8,9

CO- Course Outcomes, KL- Knowledge Level, PO – Program Outcome

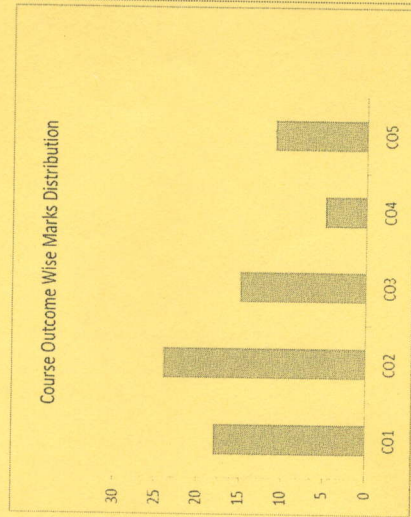
CO1	Students will be able to understand the role of Biotechnology in different sectors
CO2	Students will be able to know the biotechnology process in protein engineering
CO3	Students will be able to clearly understand and explain about plant microbes interaction
CO4	Students will be able to understand and explain about biodegradable materials to protect environment pollution
CO5	Students will be able to explain about DNA fingerprinting

**GRAFICAL REPRESENTATION**

**Bloom's Level wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6



**ARKAJAIN**  
University  
Jharkhand

**End Term Examination**  
School of Health and Allied  
Science

Branch	B.Sc. Biotechnology
Subject Name	Biotechnology and human welfare
Program	Biotechnology
Semester	I
Year	2023/ Odd
Time: 3 Hour Max. Marks : 60	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't Write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Four out of Six of Section B</li> <li>Answer Any Three out of Five of Section C</li> <li>Possession of <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u></li> </ul>
Knowledge Level (KL)	K1 : Remembering      K3 : Applying      K5 : Evaluating K2 : Understanding      K4 : Analysing      K6 : Creating

**Section A (Each question Carry 01 Marks from Q1-i to Q1-x) – 10 Marks**

Q. No.	QUESTIONS	Marks	COs	KL	PO
1					
i	Which of the following is produced commercially using genetically engineered bacteria? a) Thyroxine      b) Human insulin c) Testosterone      d) None of these	1	CO2	K1	PO1
ii	In gene therapy, the genetic defect is corrected by delivery of _____ gene into the individual. a) incorrect      b) mutant c) normal      d) jumping	1	CO2	K2	PO1
iii	What has been designed with <i>Bacillus thuringiensis</i> strains (Bt)? a) Biofertilizers      b) Bio-metallurgy process c) Insulin      d) Bioinsecticidal plants	1	CO1	K1	PO6
iv	What was the first human hormone produced using recombinant DNA technology? a) Insulin      b) Estrogen c) Thyroxin      d) Progesterone	1	CO2	K1	PO1
v	DNA finger printing was developed by a) Alen Jafrey      b) Waston crick c)Yamanaka      d) Paul Berg	1	CO5	K1	PO7

Q. No.	QUESTIONS	Marks	COs	KL	PO
vi	..... is used for ethanol production a) <i>Streptomyces aureofaciens</i> b) <i>Sachhromyces cerevisiae</i> c) <i>Pencillium notatum</i> d) All of the above	1	CO1	K1	PO1
vii	Introduction of healthy gene into cells, tissue or organ cultured invitro and reimplanting back into patient is called a) Germ line therapy b) Somatic cell therapy c) Ex vivo therapy d) In vivo therapy	1	CO2	K2	PO1
viii	The hybridoma are made by a) Fusing T cells with myeloma cells b) Using B cells with myeloma cells c) Using M cells with myeloma cells d) None of the above	1	CO1	K1	PO1
ix	In hybridoma technology hybrid cells are selected in a) MS medium b) HAT Medium c) X gal Medium d) Whites Medium	1	CO2	K1	PO1
x	Which of the following is not the application of DNA fingerprinting a) Forensic science b) Disputed Parentage c) Diagnosis of inherited disorder d) All the above	1	CO5	K5	PO1

**Section B Answer any FOUR out of SIX [4x5=20 Marks]**

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	What are the applications of Monoclonal antibodies?	5	Co1	K2	PO7
3	Define bioremediation and ammonification	5	CO4	K1	PO6
4	What are enzymes? Discuss different application of enzymes in industry.	5	CO2	K5	PO7
5	Give two example of fermented food and the microorganism responsible for fermentation.	5	CO1	K1	PO1
6	Discuss applications of gene therapy.	5	CO2	K6	PO1
7	Discuss any one plant microbe interaction.	5	CO3	K4	PO6

**Section C Answer any THREE out of FIVE [3x10=30 Marks]**

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Discuss different types of DNA fingerprinting techniques.	10	CO5	K2	PO1
9	Discuss different methods of gene therapy.	10	CO2	K3	PO1
10	What are the harmful effects of Pesticides? Discuss various types of pesticides being used.	10	CO3	K4	PO6
11	Discuss different classification of monoclonal antibody.	10	CO2	K1	PO7
12	What are antibiotics? Name any three antibiotics and their sources. How are these produced in the industry?	10	CO1	K2	PO7

CO- Course Outcomes,

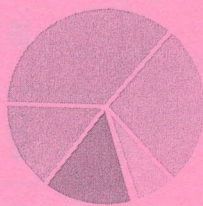
KL- Knowledge Level,

PO – Program Outcome.

CO1	Understand structure and function of a prokaryotic and eukaryotic cells (both plant and animal cells)
CO2	To acquaint with structure and function of different cell organelles such as mitochondria, nucleus, Golgi apparatus etc.
CO3	Understand Signal transduction and various cell signalling pathways
CO4	Attain knowledge about Cancer, causes of Cancer, agents of cancer and molecular basis of cancer.
CO5	Able to understand expression and regulation of cell receptor and their function.

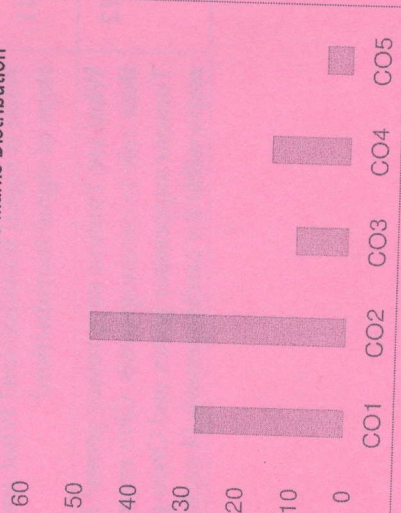
**GRAFICAL REPRESENTATION**

**Bloom's Level wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

**Course Outcome Wise Marks Distribution**



**ARKAJAIN University**  
Jharkhand

**End Term Examination**  
School of Health & Allied Science

**Branch** B.Sc. Biotechnology

**Subject Name** Cell Biology

**Program** Biotechnology  
**Semester** I

**Year** 2023/ Odd

Time: 3 Hour  
Max. Marks : 60

- Start writing from 2nd page onwards; **don't Write on the 1st Page Backside**
- **Answer all Questions of Section A (Compulsory)**
- **Answer Any Four out of Six of Section B**
- **Answer Any Three out of Five of Section C**
- **Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Papers.**

**Knowledge Level (KL)**

**K1** : Remembering

**K3** : Applying

**K5** : Evaluating

**K2** : Understanding

**K4** : Analysing

**K6** : Creating

**Section A (Each question Carry 01 Marks from Q1-i to Q1-x) – 10 Marks**

Q. No.	QUESTIONS	Marks	COs	KL	PO
1					
i	Plastids used in storing Carbohydrates are called a) Chloroplast b) Chromoplast c) Elaioplast d) Amyloplast	1	CO1 CO2	K1	PO2
ii	The cells that do not contain a well-defined nucleus a) Muscle cell b) Red blood cell c) White blood cell d) Nerve cell	1	CO2	K1	PO1
iii	Ribosomal RNA is actively synthesized in a) Ribosomes b) Nucleolus c) Nucleoplasm d) Lysosomes	1	CO2	K2	PO2
iv	The chromosome in which centromere is situated close to one end are a) Metacentric b) Acrocentric c) Sub metacentric d) Telocentric	1	CO2	K1 K3	PO1 PO2 PO3
v	DNA is not present in a) Chloroplast b) Nucleus c) Mitochondria d) Ribosomes	1	CO2	K2 K3	PO1 PO2 PO3

**Section C Answer any THREE out of FIVE [3x10= 30 Marks]**

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Define the structure and function of Chloroplast. Draw a well labelled diagram.	10	CO1 CO2	K1 K6	PO1 PO2 PO3
9	Define the process of Active and Passive transport across the plasma membrane in a cell.	10	CO2	K1 K2	PO1 PO2 PO3
10	Write the structure and function of Mitochondria. Draw a well labelled diagram.	10	CO2	K1 K2 K6	PO1 PO2 PO3
11	What is signal transduction? What are the basic steps of signal transduction?	10	CO3	K5	PO1 PO2 PO3
12	What are Tumour suppressor genes? Explain their role in carcinogenesis. Give examples of Tumour suppressor genes and Onco-genes responsible for carcinogenesis.(4 each)	10	CO4	K5	PO1 PO2 PO3

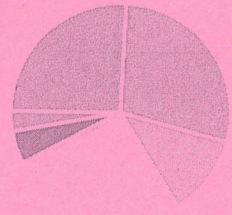
vi	Which of the following is the component of cell wall in an E. coli cell a) Lignin b) Cellulose c) Peptidoglycan d) Proteoglycan	1	CO2	K1 K5	PO1 PO2,3
vii	The endomembrane system of a eukaryotic cell does not include a) Endoplasmic reticulum b) Lysosome c) Vacuole d) Peroxisomes	1	CO2	K1 K2 K5	PO1 PO2 PO3
viii	A defective oncogene is a damaged version of a.....is characterized by its a) Proto-oncogene; inability to transcribed into RNA b) Genome; unresponsiveness to deactivation signal c) Proto-oncogene; unresponsiveness to deactivation signal d) Genome; inability to transcribed into RNA	1	CO4	K1 K2 K4	PO1 PO2 PO3
ix	Which of the following scientists formulated the cell theory? a) Schleiden and Schwann b) Rudolf Virchow c) Robert Koch d) Antony Von Leeuwenhoek	1	CO1 CO2	K1 K2 K3	PO1 PO2 PO3
x	The cells that do not contain a well-defined nucleus a) Muscle cell b) Red blood cell c) White blood cell d) Nerve cell	1	CO1	K1 K2 K3	PO1 PO2 PO3

**Section B Answer any FOUR out of SIX [4x5=20 Marks]**

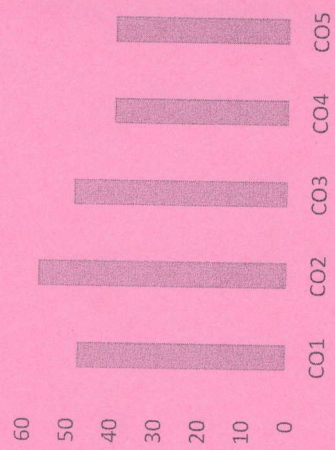
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	How many types of RNA are there in a cell? Write specific function of each type of RNA.	5	CO2	K1	PO1 PO2,3
3	What are the important functions of Endoplasmic reticulum in the cell?	5	CO2 CO5	K1	PO1 PO2,3
4	Describe the process of Phagocytosis. Draw a well labelled diagram	5	CO1	K6	PO1 PO2,3
5	What is extracellular matrix? State any two important functions. Name the important components of extra cellular matrix in a cell.	5	CO1	K2	PO1 PO2 PO3
6	What is carcinogenesis? Name the chemical and biological carcinogens.	5	CO4	K2	PO1 PO2,3
7	Name the Scientists who gave Cell theory. Write the important postulates of cell theory.	5	CO1	K3	PO1 PO2 PO3

CO1	Learn the different forms & type of communication
CO2	Learn the writing formats and letter story.
CO3	Learn the Reading comprehension
CO4	Learn Grammar and Vocabulary
CO5	Learn Soft skills and Professional Excellence.

**Bloom's Level wise Marks Distribution**



**Course Outcome Wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6



**ARKAJAIN University**  
Jharkhand

**End Term Examination**  
School of Health and Allied Science

Branch	B.Sc. Biotechnology	Program	Biotechnology
Subject Name	English	Semester	I
		Year	2023/Odd
Time: 1:30 Hour Max. Marks : 35	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't Write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>5 Very Short Question</li> <li>Answer Any Two out of Four of Section B</li> <li>Answer Any One out of Three of Section C</li> <li>Possession of <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u></li> </ul>		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

**Section A (Each question Carry 01 Marks from Q1-i to Q1-V) & Q2 – 10 Marks**

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	One should perform one's prayers a) One's prayers should be performed b) Prayers are performed c) Prayers should be performed d) One's prayers should be performed by one	1	CO1	K1	PO2
ii	The noun of attend is..... a) Attending b) Attendance c) Attainment d) Attended	1	CO1	K1	PO1,
iii	Give the Antonym of EMBRACE a) Disobey b) Contradict c) Reject d) Obscure	1	CO2	K1,	PO2
iv	I want to buy ..... laptop computer next week a) A b) An c) The d) Some	1	CO1	K1	PO1,
v	They.....reach the station in time. a) Should b) Were c) Must d) Have	1	CO2	K1	PO1,

**Very Short Question Answer [2x5=10]**

2	<p>a) Define communication.                      b) What is hearing and listening?                      c) Write about encoding.                      d) What is active listening?                      e) What is the importance of feedback in communication?</p>	2	CO2	K1,	PO2
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**Section B Answer any TWO out of FOUR [2x5=10 Marks]**

Q. No.	QUESTIONS	Marks	COs	KL	PO
3	Discuss the key pointers for efficient communication in the medical field.	5	CO2,	K2,	PO2,
4	Write the factors to overcome the barriers of communication for healthcare professionals.	5	CO3,	K1	PO1,
5	What are the purposes and types of communication?	5	CO2	K1	PO1,
6	Mention the principles of communication.	5	CO2	K1	PO1,

**Section C Answer any ONE out of THREE [1x10 =10 Marks]**

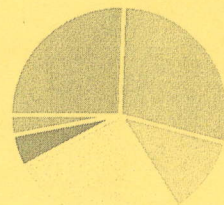
Q. No.	QUESTIONS	Marks	COs	KL	PO
7	Describe the core elements that comprise patient satisfaction.	10	CO1 CO3	K1 K2,6, 4	PO1, PO2, PO3
8	Write a letter to the Program Coordinator for seeking five-day leave.	10	CO1 CO2, 3,5	K1 K2,3, 6	PO1, PO2, PO3
9	Describe the importance of learning English.	10	CO1 CO2, 3,4,5	K1 K2,3, 4	PO1, PO2, PO3



CO- Course Outcomes,	KL- Knowledge Level,	PO – Program Outcome
CO1	Have foundational understanding of the chemical constituents of cells, the basic units of living organisms.	
CO2	Explain various types of weak interactions between the biomolecules.	
CO3	Able to understand the simple precursors that give rise to large biomolecules such as proteins, carbohydrates, lipids, nucleic acids.	
CO4	Understand about biocatalyst and their role	
CO5	Understand metabolism of the biomolecules to produces energy and other precursor molecules.	

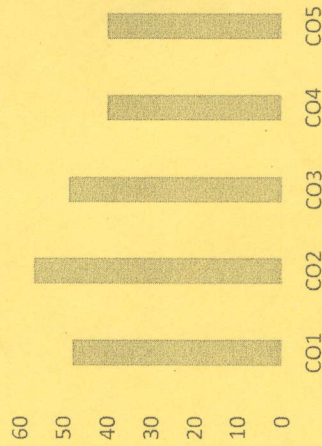
### GRAFICAL REPRESENTATION

#### Bloom's Level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

#### Course Outcome Wise Marks Distribution



Branch	B.Sc. Biotechnology	Program	Biotechnology
Subject Name	Biochemistry and Metabolism	Semester	I
		Year	2023/Odd
Time: 3 Hour Max. Marks : 60	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't Write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Four out of Six of Section B</li> <li>Answer Any Three out of Five of Section C</li> <li>Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.</li> </ul>		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

### Section A (Each question Carry 01 Marks from Q1-i to Q1-x) – 10 Marks

Q.N1	QUESTIONS	Marks	COs	KL	PO
i	Glucose -6-phosphatase is not present in a) Liver and Kidney b) Kidney and Muscles c) Kidney and Adipose tissue d) Muscles and Adipose tissue	1	CO1	K1 K2	PO2
ii	Which of the following is a not a polysaccharide a) Sucrose b) Starch c) Glycogen d) Cellulose	1	CO1 CO2, 4,5	K1 K2 K3 K4	PO1, PO2, PO3
iii	Which of the following is not a sulphur containing amino acid a) Cysteine b) Methionine c) Threonine d) Tyrosine	1	CO2 CO3, 4,5	K1, K3, K4	PO2
iv	Which of the following is a globular protein a) Keratin b) Haemoglobin c) Collagen d) Fibroin	1	CO1 CO2, 4,5	K1 K2,5	PO1, PO2, PO3
v	Type of bond present in DNA a) Peptide linkage/bond b) Phosphodiester linkage/ bond c) Electrovalent bond d) Co-ordinate bond	1	CO2 CO3 CO4 CO5	K1 K2 K4	PO1, PO2, PO3
vi	In protein structure the -helix and -pleated sheets are examples of a) Primary structure b) Secondary structure c) Tertiary structure d) Quaternary structure	1	CO1 CO2 CO4	K1 K2 K3	PO1, PO2, PO3

Q. No.	QUESTIONS	Marks	COs	KL	PO
vii	c) Tertiary structure d) Quaternary structure α- Helix is formed by a) Hydrogen bonds b) Hydrophobic bonds c) Electrostatic bonds d) Disulphide bonds	1	CO1 CO2, 3,5	K1 K2,3, 4	PO1, PO2, PO3
viii	Inactive precursors of enzymes are known as a) Apoenzymes b) Co-enzymes c) Proenzymes d) Holoenzymes	1	CO1 CO3, 4,5	K1 K2,3, 4	PO1, PO2, PO3
ix	Melting temperature of DNA is increased by its a) A and T content b) G and C content c) Sugar content d) Phosphate content	1	CO1 CO3, 4,5	K1 K2,3, 4	PO1, PO2, PO3
x	Human are unable to digest a) Starch b) Complex fatty acids c) Denatured proteins d) Cellulose	1	CO1 CO2, 3,4	K1 K2,3, 4	PO1, PO2, PO3
<b>Section B Answer any FOUR out of SIX [4x5=20 Marks]</b>					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Write short notes on: a) Peptide bond, b) Glycosidic bond c) Isoelectric point	5	CO1 CO2	K1 K2,3, 4	PO1, PO2, PO3
3	Describe tertiary structure of protein. What are the forces responsible for this protein structure?	5	CO1 CO2, 4,5	K1 K2,3, 4,5	PO1, PO2, PO3
4	What is Henderson – Hassel Balch Equation? Explain	5	CO2 CO3, 4,5	K1 K2,3, 4	PO1, PO2, PO3
5	What is the difference between Nucleotide and Nucleoside? Name the purines and pyrimidines present in RNA.	5	CO2 CO3, 4,5	K1 K2,3, 4	PO1, PO2, PO3
6	Describe the process of titration of a weak acid with a strong base?	5	CO2 CO4, 5	K1 K2,3, 4	PO1, PO2, PO3
7	What are Enzymes? Explain the factors that affect Enzyme activity.	5	CO1 CO3, 4,5	K1 K2,3, 4	PO1, PO2, PO3
<b>Section C Answer any THREE out of FIVE [3x10 =30 Marks]</b>					
Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Define the process of Glycolysis in carbohydrate metabolism.	10	CO1 CO3	K1 K2,6, 4	PO1, PO2, PO3

9	Describe Pentose Phosphate Pathway. What is the importance of this pathway?	10	CO1 CO2, 3,5	K1 K2,3, 6	PO1, PO2, PO3
10	Explain the A, B, and Z form of DNA structure.	10	CO1 CO2, 3,4,5	K1 K2,3, 4	PO1, PO2, PO3
11	Show classification of amino acids on the basis of polarity of R - Group?	10	CO1 CO2, 3,5	K1 K2,3, 4	PO1, PO2, PO3
12	What are the unique properties of water that make it a universal solvent?	10	CO1 CO2, 3,5	K1 K2,3, 4	PO1, PO2, PO3